

REMARKS

The Office Action dated January 4, 2007, has been carefully considered. Claims 64-89 and 92-114 are currently pending. Claims 90 and 91 have been cancelled without prejudice or disclaimer of the subject matter contained therein. New Claims 110-114 have been added to further define the protection in which Applicants are entitled. Applicants request that the Examiner consider the following remarks, and pass the application to allowance.

Section 112 Rejections:

Claims 90 and 91 were rejected under 35 U.S.C. 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 90 and 91 have been cancelled without prejudice or disclaimer of the subject matter contained therein.

Section 103 Rejections:

Claims 64-74, 77-80, 82-87, 89, 92-102, 105-106, and 109 were rejected under 35 U.S.C. 103(a) as allegedly being obvious over Sofield et al. (U.S. 2002/0072127 A1) in view of Ellerbock et al. (U.S. Patent No. 6,204,920) and Wohlstadter et al. (U.S. Patent No. 6,066,448).

Claim 64 as amended recites a system for detecting target molecules in a sample, comprising: an assembly comprising: a silicon portion having an array of microsensors, wherein at least some of the microsensors are functionalized to deflect when exposed to target molecules; and a glass portion, the silicon portion and the glass portion forming an individual fluid cell for each of the microsensors and wherein each of the individual fluid cells has an inlet and an outlet; an optical beam source configured to simultaneously direct an optical beam onto each of the microsensors in the array of microsensors; and an optical detector array configured to simultaneously detect the position of each of the microsensors. (Emphasis added).

Claim 92 as amended recites a system for detecting target molecules in a sample, comprising: an array of microsensors, each microsensor having an individual microfluid reservoir, and wherein at least some of the microsensors are

functionalized to deflect when exposed to a target molecule; an optical beam source configured to simultaneously direct an optical beam onto each of the microsensors in the array of microsensors; an optical detector array configured to simultaneously detect the position of each of the microsensors; and wherein each of the individual microfluid reservoirs has at least one channel for introducing a fluid sample into the individual microfluid reservoirs and a through hole for functionalization of the individual fluid reservoirs. (Emphasis added).

Sofield et al relates to a method and an apparatus for assaying chemical binding, that is to say reversible reactions between a receptor and a ligand. In accordance with one embodiment, the "test equipment 20 comprises a silicon wafer 22 defining an array of through holes 24 each of diameter 0.7 mm. Within each hole 24 is a micro-cantilever 10 with gold on its lower surface. A thin glass plate 26 is bonded to the lower surface of the wafer 22, so that an array of liquid vessels are defined by the holes 24 and the plate 26." Paragraph [0003]. As set forth in the Office Action on page 9, Sofield does not suggest or teach that each hole or individual fluid cell has an inlet and an outlet, or that each of the individual microfluid reservoirs has at least one channel for introducing a fluid sample into the individual microfluid reservoirs and a through hole for functionalization of the individual fluid reservoirs.

Ellerbock et al. relates to a system such as for sensing strain or temperature of an aircraft and for transmitting information in communication systems.

Wohlstadter et al. relates to materials and methods, which are provided for producing patterned multi-array, multi-specific surfaces which are electronically excited for use in electrochemiluminescence based tests.

Pfost relates to a multiple fluid sample processor and system for high throughput chemical synthesis and biological assays and/or processing. As shown in Pfost, the processor is a three-layered structure comprised of a top plate or layer 12, a middle plate or layer 14, as well as one or more bottom layers or well plates 16. Col. 5, lines 56-60. The "lower well plate 16 has a plurality of wells 30 which are used to hold the reagents, solid supports, particles, and/or other materials in order for them to react to create products. Each of the reaction wells 30 has one or more entrance channels 32 and one or more exhausted or drain channels 34. The well members 30 can be formed with standard techniques in a single piece of material, or

can be formed in the intersection of two, three, or more thin plates which are bonded or fused together." Col. 6, lines 13-21.

Initially, as set forth in 35 U.S.C. § 103(a):

A patent may not be obtained though the invention is not identically disclosed or described ... if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. (Emphasis added.)

The Office bears the initial burden of establishing a factual basis to support the legal conclusion of obviousness. See *In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992); *In re Piasecki*, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984). The Office must make the factual determinations set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 17, 148 USPQ 459, 467 (1966).

For rejections under 35 U.S.C. § 103(a) that are based upon a combination of prior art elements, the Supreme Court stated in *KSR Int'l v. Teleflex Inc.*, 127 S.Ct. 1727, 1741, 82 USPQ2d 1385, 1396 (2007), that "[a]s is clear from cases such as *Adams*, a patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art." Rather, as stated in *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir.), "rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." See also *In re Fine*, 837 F.2d 1071, 1073, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988).

Applicants respectfully submit that the applied combination of references does not support a *prima facie* case of obviousness according to these legal standards. Although Pfof suggests a fluid cell or well having an inlet and outlet, or at least one channel having a through hole, there is no reason why a person of ordinary skill in the art would have combined the prior art elements in the manner claimed, since Pfof does not teach, suggest or provide any motivation to provide a fluid cell having an inlet and outlet, or channel and through hole, which is compatible with an optical beam source configured to simultaneously direct an optical beam onto each of the microsenors in the array of microsenors, and an optical detector array configured to simultaneously detect the position of each of the microsenors. Accordingly,

Claims 64 and 92 should be allowable. Claims 65-74, 77-80, 82-87, and 89, and 93-102, 105-106, and 109 are dependent from Claims 64 and 92, respectively, and should be allowable for the reasons set forth above.

Claims 75 and 103 were rejected under 35 U.S.C. 103(a) as allegedly being obvious over Sofield et al., Ellerbock et al., and Wohlstadter et al. as applied to claim 64 above, and further in view of Quate et al. (U.S. Patent No. 6,203,983).

Claims 75 and 103 are dependent from Claims 64 and 92, respectively, and for the reasons set forth above, should be allowable.

Claims 76, 81, 104, and 108 were rejected under 35 U.S.C. 103(a) as allegedly being obvious over Sofield et al., in view of Ellerbock et al., and Wohlstadter et al. as applied to claims 64 and 92 above, and further in view of Lee et al. (U.S. Patent No. 5,807,758).

Claims 76 and 81, and 104 and 108 are dependent from Claims 64 and 92, respectively, and for the reasons set forth above, should be allowable.

Claims 88 and 90-91 were rejected under 35 U.S.C. 103(a) as allegedly being obvious over Sofield et al., Ellerbock et al., and Wohlstadter et al. as applied to claim 64, further in view of Pfof (U.S. Patent No. 6,485,690).

Claim 88 is dependent from Claim 64 and for the reasons set forth above should be allowable.

The subject matter of Claims 90 and 91 has been incorporated into Claims 64 and 92 as set forth above.

New Claims 110-115:

New Claim 110 recites a system for detecting target molecules in a sample, comprising: an assembly comprising: an array of microcantilever beams, wherein each of the microcantilever beams is comprised of a cantilever beam and a reflective paddle, the reflective paddle portion including a strengthening ridge, which prevents the reflective paddle portion from bending; and an individual fluid cell for each of the microcantilever beams, and wherein at least some of the microcantilever beams are functionalized to deflect when exposed to target molecules; an optical beam source

configured to simultaneously direct an optical beam onto each of the microcantilever beams in the array of microcantilever beams; and an optical detector array configured to simultaneously detect the position of each of the microcantilever beams. (Emphasis added).

None of the above-mentioned references teach or suggest an array of microcantilever beams, wherein each of the microcantilever beams is comprised of a cantilever beam and a reflective paddle, the reflective paddle portion including a strengthening ridge, which prevents the reflective paddle portion from bending. For example, Soefield et al. relates to a micro-cantilever 10, which "is fixed at one end to a block. The micro-cantilever 10 is generally V-shaped in plan, comprising two converging strips 13,14, which are integral with a transverse cross strip 15." Paragraph [0019]. Soefield, however, does not teach or suggest a strengthening ridge, which prevents the reflective paddle portion from bending. Accordingly, Claim 110 should be allowable. Claims 111-114 are dependent from Claim 110 and should be allowable for the reasons set forth above.

Conclusion:

For the reasons presented above, all claims are believed to be in condition for allowance. A Notice of Allowance is therefore respectfully requested.

Should the Examiner feel that a telephone conference would advance prosecution of the present application, he is invited to call the undersigned attorney at the number listed below.

Respectfully submitted,
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